

**REMARKS**

The Office Action dated August 9, 2004, has been received and reviewed.

Claims 1-47 are currently pending in the above-referenced application.

Of these, claims 26-47 have been withdrawn from consideration, while claims 1-25 stand rejected.

Reconsideration of the above-referenced application is respectfully requested.

**Claim Amendments**

Each of the claim amendments presented in this Amendment merely comprises replacement of the term “said” with the equivalent term “the” or removal of extraneous incidences of the term “said.” Accordingly, the amendments to the claims do not narrow the scopes thereof.

**Rejections Under 35 U.S.C. § 102(b)**

Claims 1-11 and 14-21 stand rejected under 35 U.S.C. § 102(b) for reciting subject matter which is purportedly anticipated by the subject matter disclosed in Japanese patent publication 04-024987 of Keita (hereinafter “Keita”).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The portion of Keita that can be understood (that which was provided in English) discloses use of stereolithography processes to form printed wiring boards. Keita discloses that a layer of the printed wiring board may be formed by selectively irradiating a photosetting resin with laser light, which cures the irradiated regions of the photosetting resin. Multiple layers are sequentially formed in this fashion until a printed wiring board of desired thickness has been constructed. As printed wiring boards are fabricated in this manner, through holes may be formed.

Independent claim 1 is directed to a method for insulating at least one aperture formed through a substrate. The method of independent claim 1 includes introducing a quantity of unconsolidated material into at least one aperture of the substrate, and selectively consolidating material located adjacent to a periphery of the at least one aperture to form an insulative coating thereon.

Although Keita describes a process for fabricating a substrate (*i.e.*, a printed wiring board) that includes formation of the substrate 11 and through holes 3 from a photosetting resin 10, Keita lacks any express or inherent description that unconsolidated dielectric material is *introduced* into a through hole 3 but, rather, describes that the through hole 3 is formed with unconsolidated photosetting resin 10 already therein. Moreover, Keita does not expressly or inherently describe that photosetting resin 10 within the through holes 3 may be exposed to laser light 9 to form insulative coatings on the surfaces of the through holes 3.

Therefore, Keita does not anticipate each and every element of independent claim 1, as would be required to maintain the 35 U.S.C. § 102(b) rejection of independent claim 1.

Claims 2-9 are each allowable, among other reasons, for depending either directly or indirectly from claim 1, which is allowable.

Claim 4 is further allowable since Keita neither expressly nor inherently describes dispensing a quantity of unconsolidated dielectric material into at least one aperture.

Claim 5 is additionally allowable because Keita includes no express or inherent description of lowering a level of a substrate to introduce a quantity of photosetting resin 10 into a through hole 3. Rather, photosetting resin 10 would already be present in the through hole 3, as the through hole would be formed as a result of nonirradiation of that portion of the surface of the photosetting resin to laser light 9.

Claim 7 is also allowable since Keita does not expressly or inherently describe forming an insulative coating, let alone an insulative coating that includes multiple layers.

Independent claim 10 recites a method for forming electrically conductive vias through a substrate. The method of independent claim 10 includes forming at least one precursor hole through a substrate, introducing unconsolidated dielectric material into the at least one precursor

hole, and selectively consolidated portions of the dielectric material at locations adjacent to a periphery of the at least one precursor hole to form a layer of an insulative coating on surfaces thereof.

Instead of disclosing that at least one aperture may be formed through a substrate, the description of Keita is limited to forming a substrate and through holes 3 simultaneously.

Moreover, Keita does not expressly or inherently describe that unconsolidated dielectric material is *introduced* into a through hole 3 but, rather, that the through hole 3 is formed with unconsolidated photosetting resin 10 already therein.

Further, Keita lacks any express or inherent description of selectively consolidating unconsolidated dielectric material *within* a through hole 3. Rather, the portion of Keita that is understood describes nothing more than forming a substrate 11 with holes 3 extending therethrough.

In view of the foregoing, it is respectfully submitted that the subject matter recited in independent claim 10 is, under 35 U.S.C. § 102(b), allowable over the subject matter disclosed in Keita.

Claims 11 and 14-21 are each allowable, among other reasons, for depending either directly or indirectly from claim 10, which is allowable.

Claim 11 is additionally allowable since Keita lacks any express or inherent description of the shapes of holes 3 that may extend through the substrate 11 disclosed therein. In particular, Keita lacks any express or inherent description of a through hole 3 that may have a substantially cylindrical shape, a substantially frustoconical shape, an hourglass shape, or a bulging center.

Claim 16 is further allowable since Keita neither expressly nor inherently describes dispensing a quantity of unconsolidated dielectric material into at least one aperture.

Claim 17 is additionally allowable because Keita includes no express or inherent description of lowering a level of a substrate to introduce a quantity of photosetting resin 10 into a through hole 3. Rather, photosetting resin 10 would already be present in the through hole 3, as the through hole would be formed as a result of nonirradiation of that portion of the surface of the photosetting resin to laser light 9.

Claim 19 is also allowable since Keita does not expressly or inherently describe forming an insulative coating, let alone an insulative coating that includes multiple layers.

For these reasons, it is respectfully requested that the 35 U.S.C. § 102(b) rejections of claims 1-11 and 14-21 be withdrawn.

### **Rejections Under 35 U.S.C. § 103(a)**

Claims 12, 13 and 22-25 have been rejected under 35 U.S.C. § 103(a) for being drawn to subject matter which is purportedly unpatentable over teachings from Keita, in view of the subject matter taught in U.S. Patent Application Publication No. 2004/0112881 A1 of Bloemeke et al. (hereinafter “Bloemeke”).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 12, 13, and 22-25 are each allowable, among other reasons, for depending either directly or indirectly from claim 10, which is allowable.

It is further submitted that a *prima facie* case of obviousness has not been established against any of claims 12, 13, or 22-25.

In particular, it is respectfully submitted that one of ordinary skill in the art would not have been motivated to combine the teachings of Keita and Bloemeke in the manner that has been asserted. This is because Keita teaches a process whereby holes 3 are formed in a substrate 11 as the substrate 11 itself is being fabricated. The processes that are disclosed in

Keita are capable of forming holes 3 of a variety of configurations. Thus, there would be no need to additionally use the drilling processes taught in Bloemeke to form additional vias or to modify the holes 3 that already extend through the substrate 11.

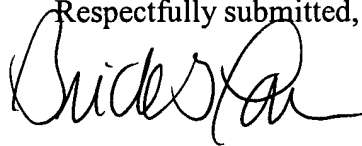
As the process taught in Bloemeke would be a totally unnecessary modification of the process disclosed in Keita, it appears that the only source for motivation to combine the teachings of these references in the manner that has been asserted would have been the hindsight provided by the disclosure of the above-referenced application.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejections of claims 12, 13, and 22-25 is respectfully requested.

**CONCLUSION**

It is respectfully submitted that each of claims 1-25 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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